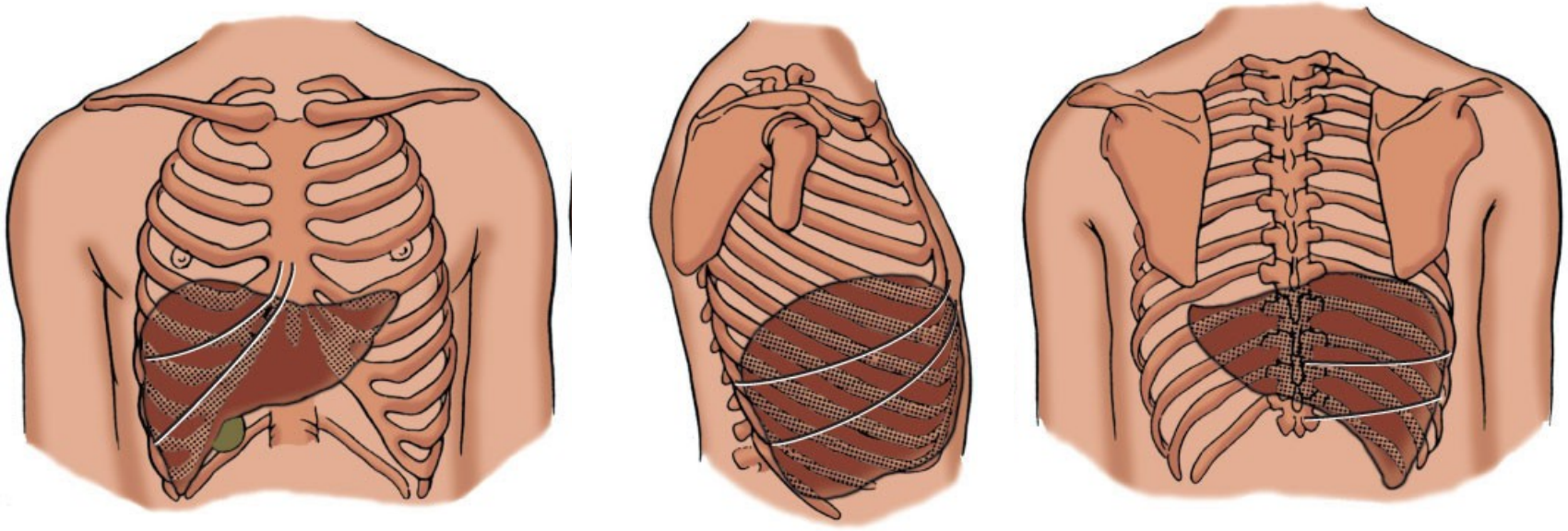
# Liver

# INTENDED LEARNING OBJECTIVES (ILO)

- Describe site, lobes and surfaces of the **liver .**
- Describe relations and peritoneal covering of the liver .
- Enumerate structures present at porta hepatis.
- Describe surface anatomy and blood supply of **liver**.

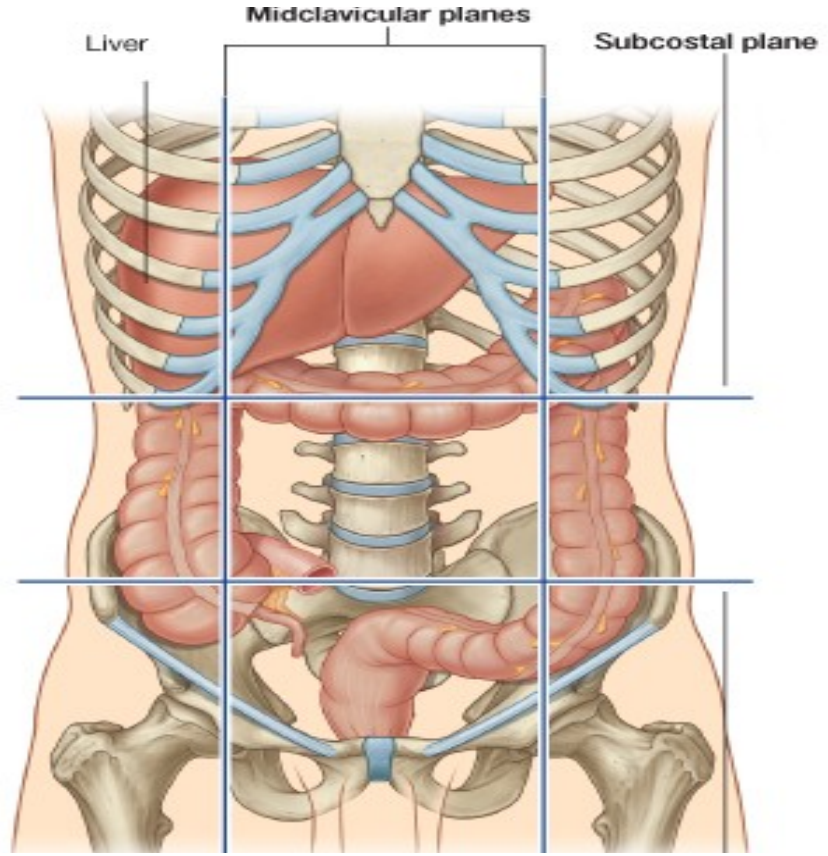
# DESCRIBTION AND SHAPE OF THE LIVER

Liver is one of the largest organ in the body
Its weight: about 1200-1500g.
It is a wedge shaped organ which lies just beneath the diaphragm, with its base to the right and apex to the left.

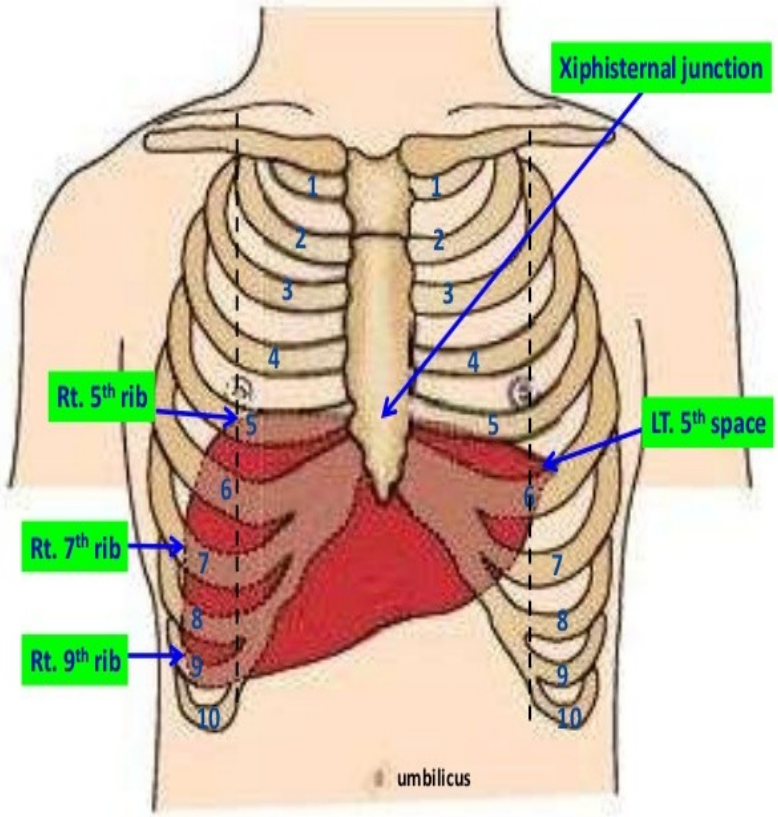


# POSITION OF THE LIVER

***It occupies most of the right hypochondrium and epigastrium extending into the left hypochondrium***



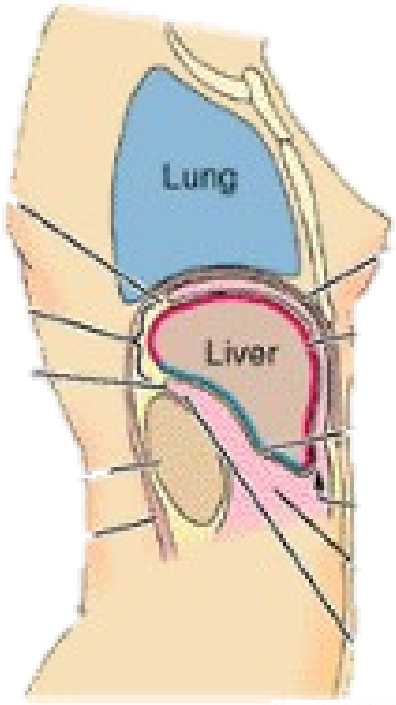
# SURFACE ANATOMY OF LIVER

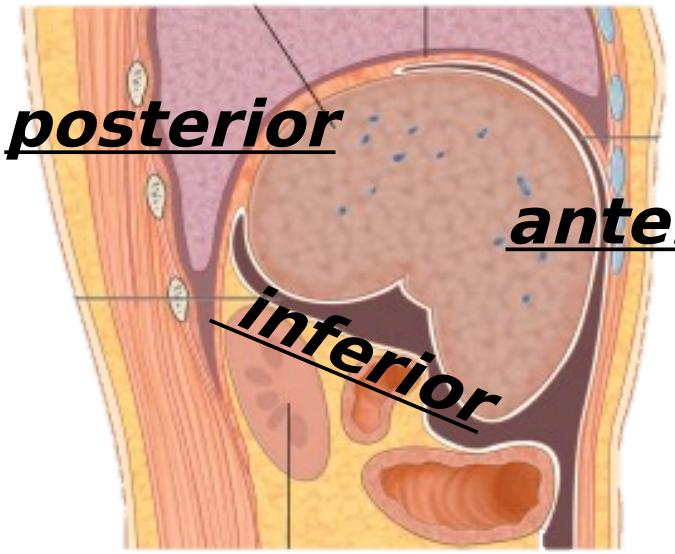


# Surfaces Of The Liver

**Surfaces of the liver include**

1. **diaphragmatic surface** in the anterior, superior, and posterior directions
2. **visceral surface** in the inferior direction




***Diaphragmatic surface***

***Visceral surface***

# Diaphragmatic surface

**Right :** It is related to the right cupola of the diaphragm separating it from **7th to 11th ribs.**

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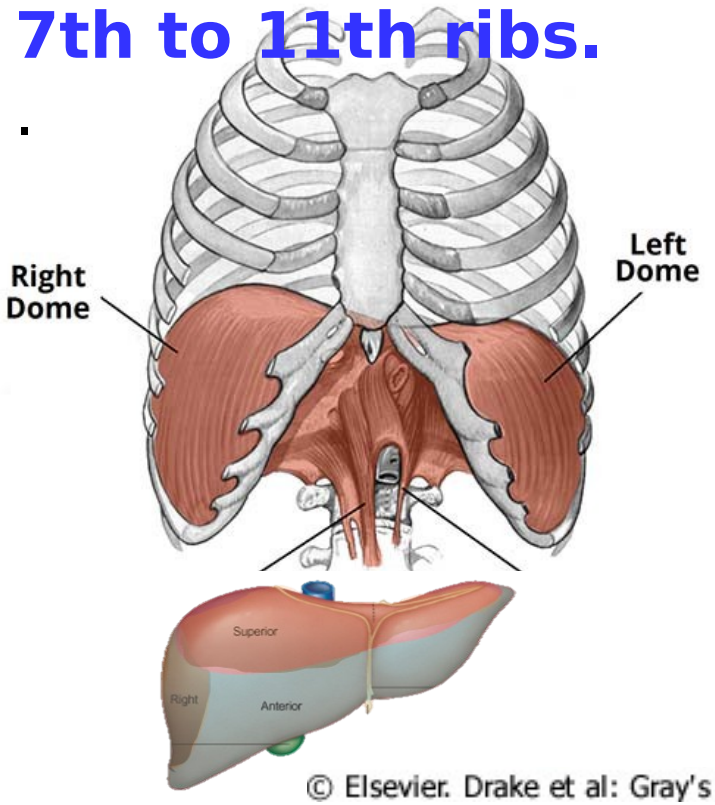
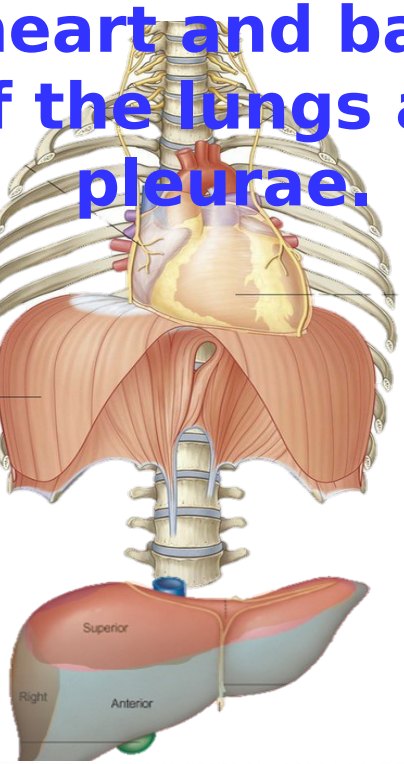
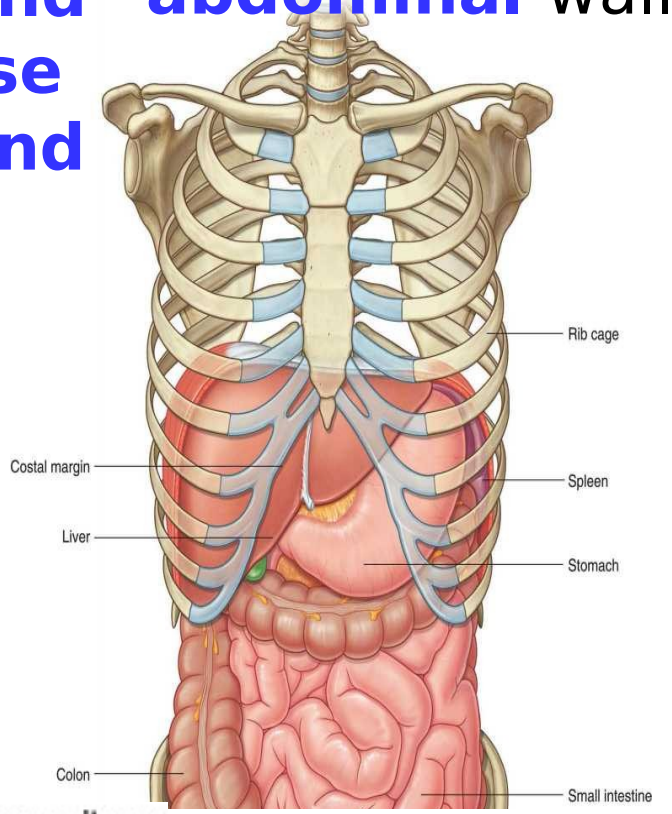



**Inferior :** It is related to the diaphragm separating it from **pericardium and heart and base of the lungs and pleurae.**

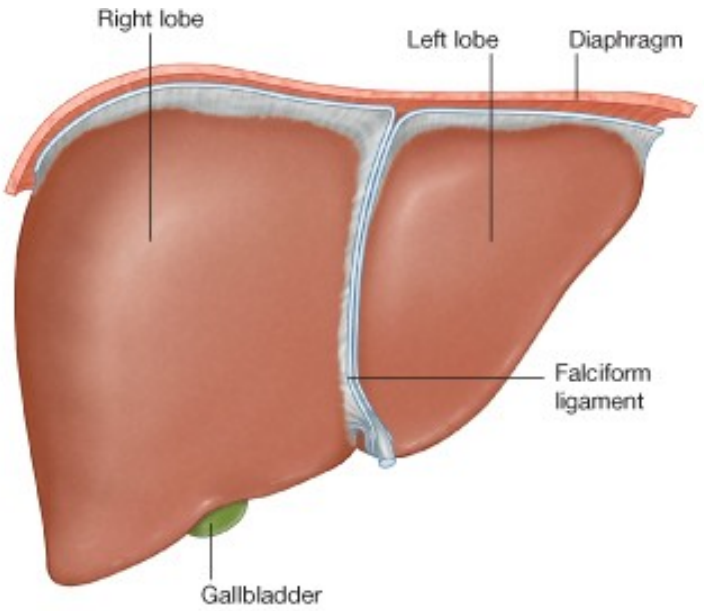



**Anterior :** It is related to the diaphragm and **anterior abdominal** wall



# Diaphragmatic surface

The diaphragmatic surface of the liver is smooth and domed, lies against the inferior surface of the diaphragm





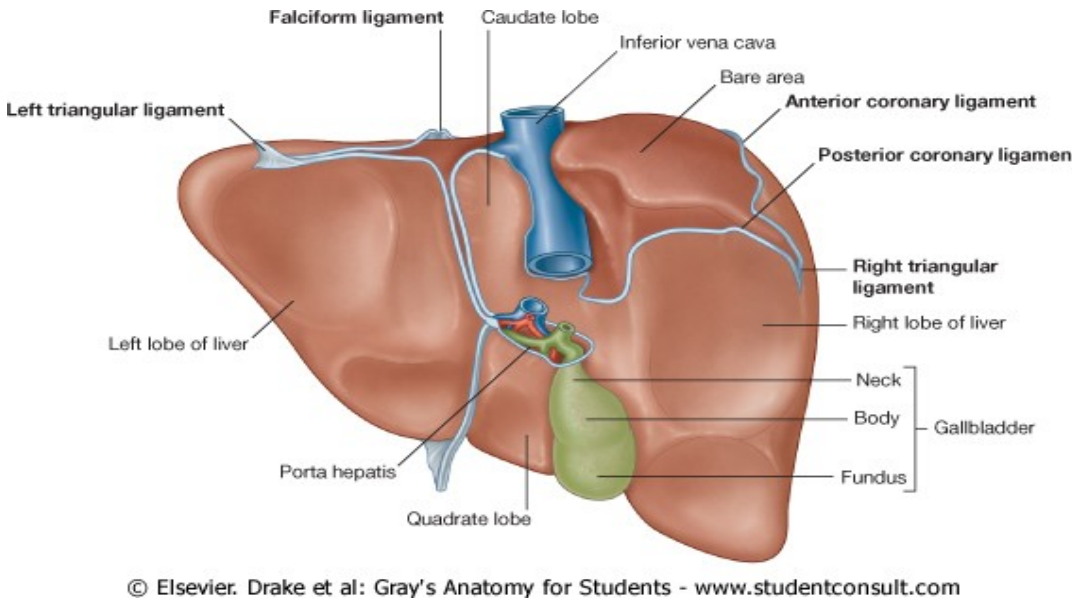
**Anteriorly :**

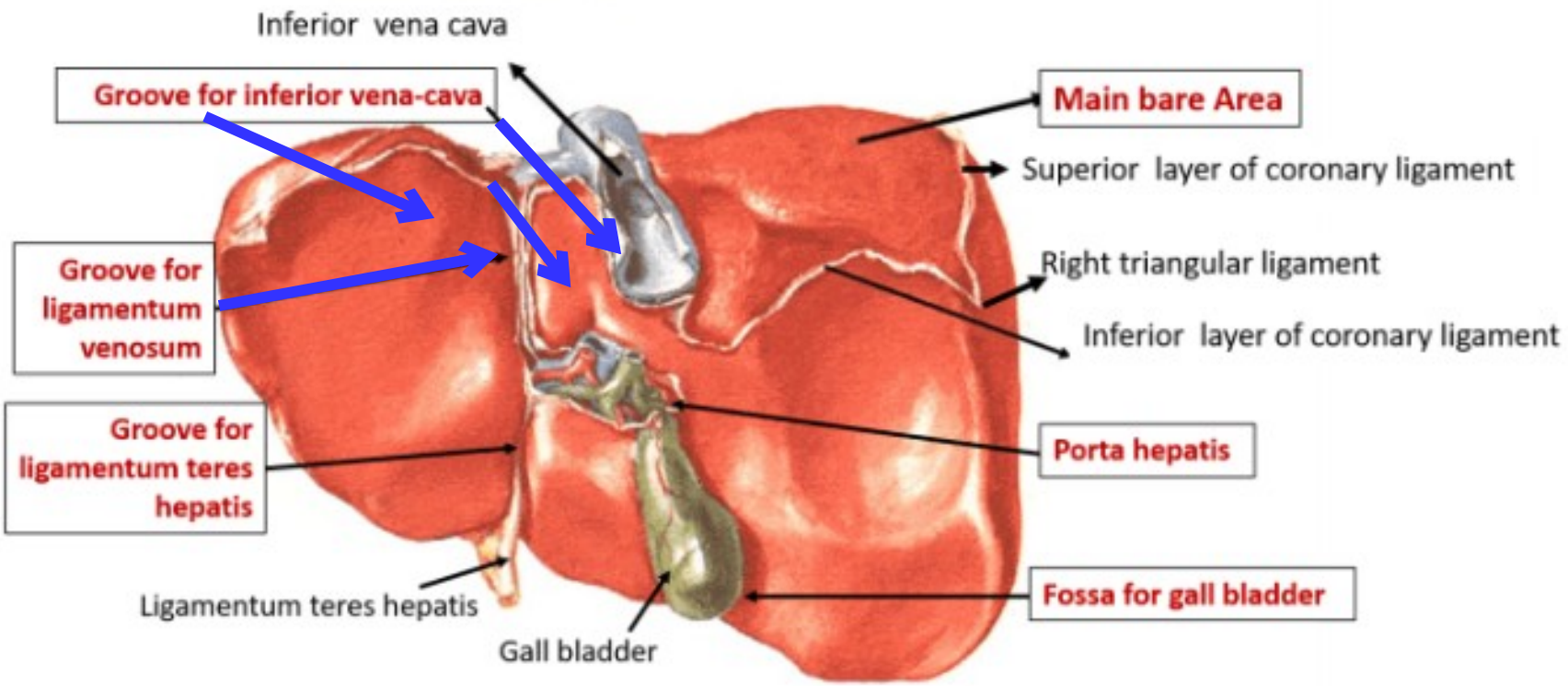
It shows the attachment of the **falciform ligament**.

# Diaphragmatic surface

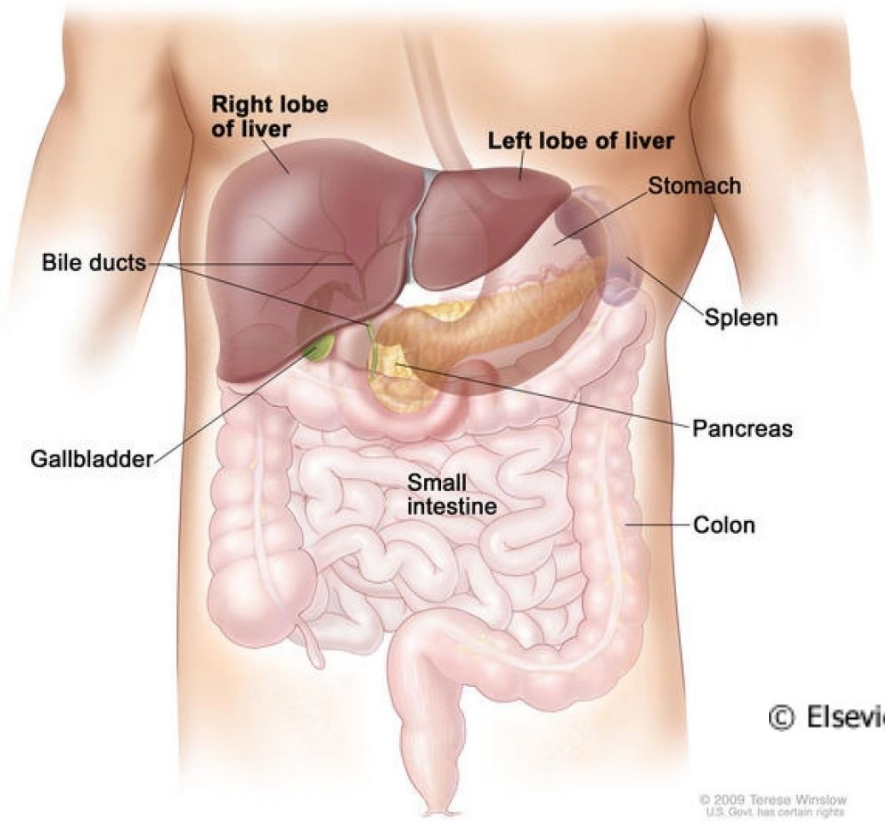
- Posteriorly:

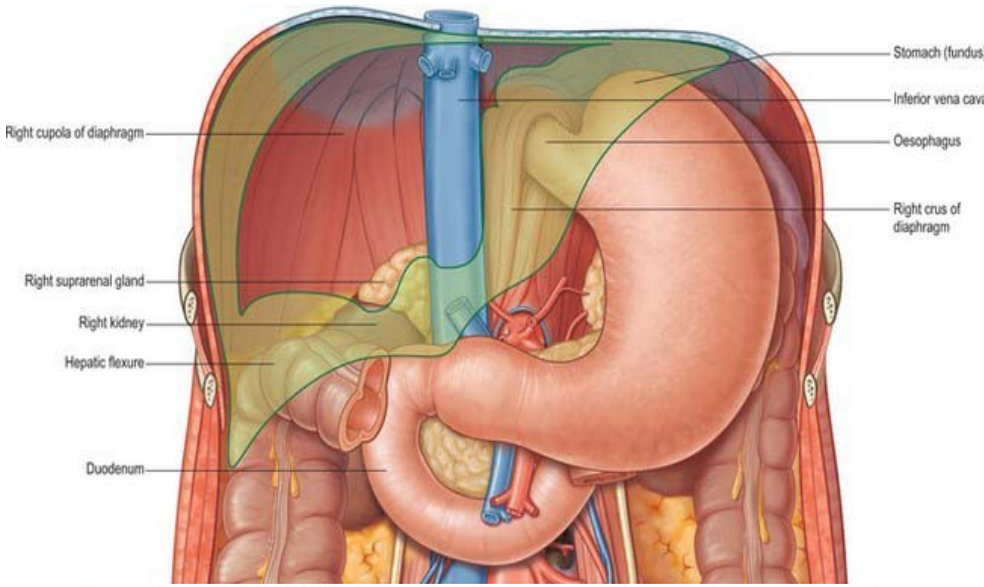
This surface presents an area not covered by peritoneium , triangular in shape  **Bare area**




Inferior vena cava
Groove for inferior vena-cava
Main bare Area
Superior layer of coronary ligament
Groove for ligamentum venosum
Right triangular ligament
Inferior layer of coronary ligament
Groove for ligamentum teres hepatis
Porta hepatis
Ligamentum teres hepatis
Fossa for gall bladder
Gall bladder

# Visceral surface ( inferior)

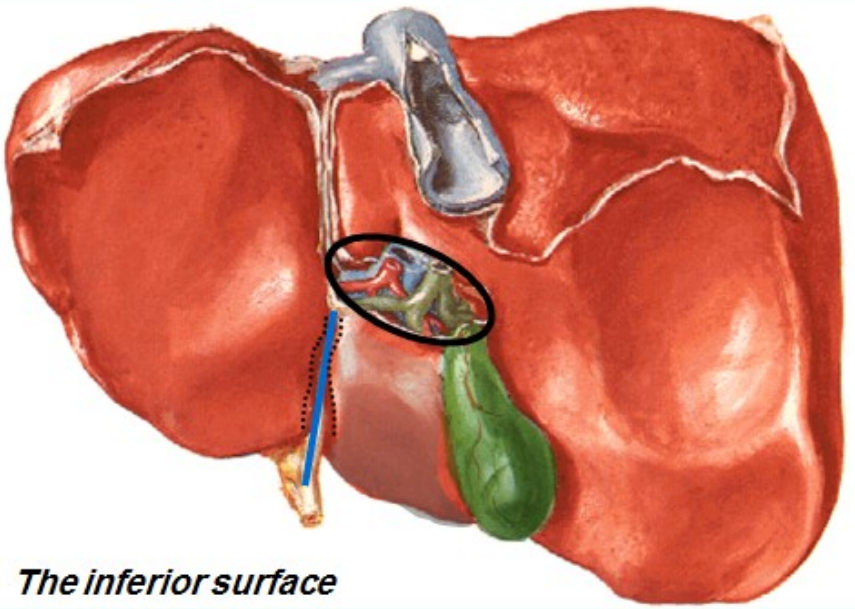


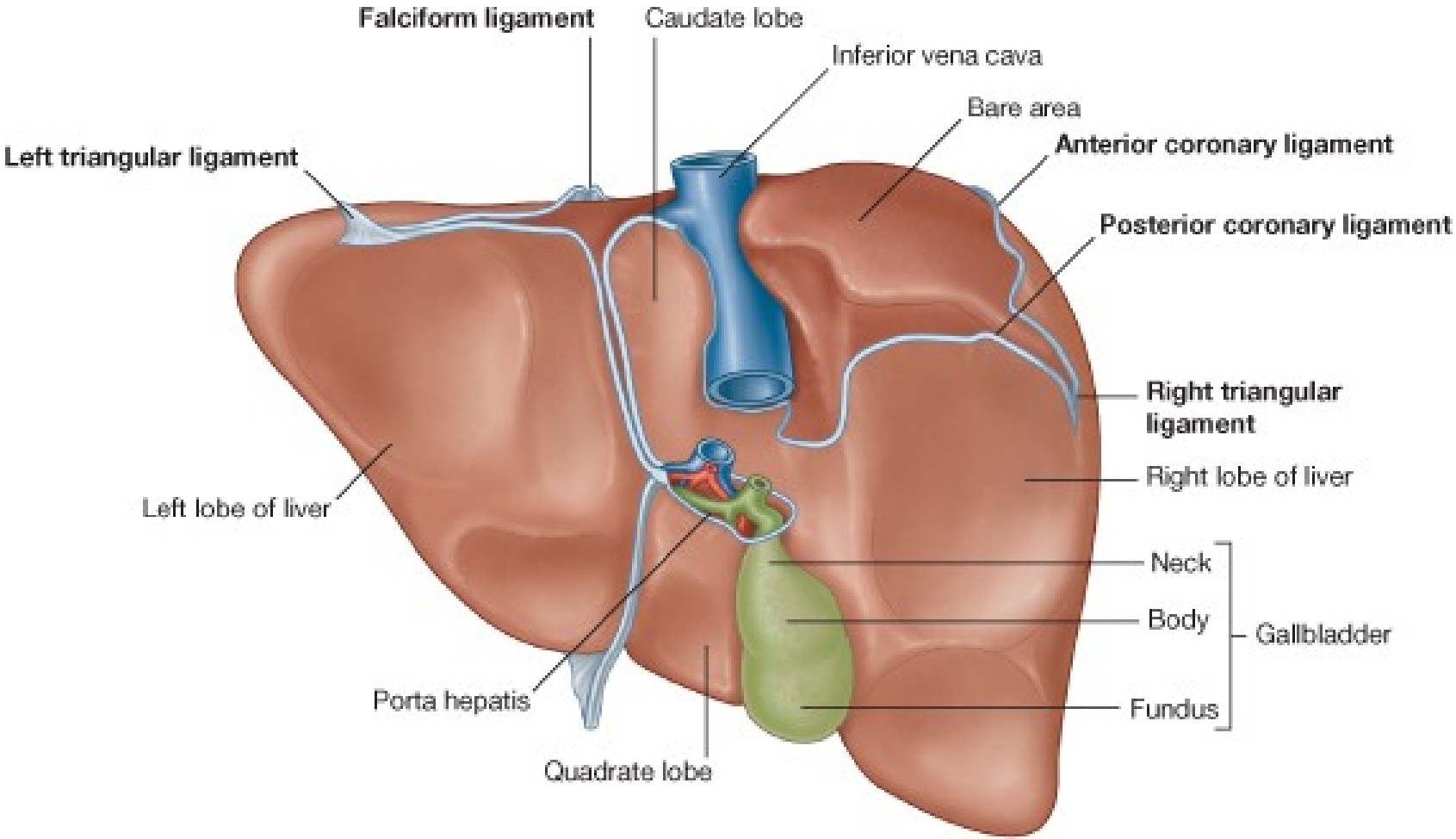
# Visceral surface ( inferior)

**Related from left to right:**

- **Gastric impression**
- **Fissure for ligamentum teres**
- **The quadrate lobe**
- **Porta hepatis (hilum of th liver)**
- **Fossa for gall bladder**
- **Colic impression:** right colic flexure.
- **Renal impression** right kidney.
- **Suprarenal impression:** right suprarenal gland.



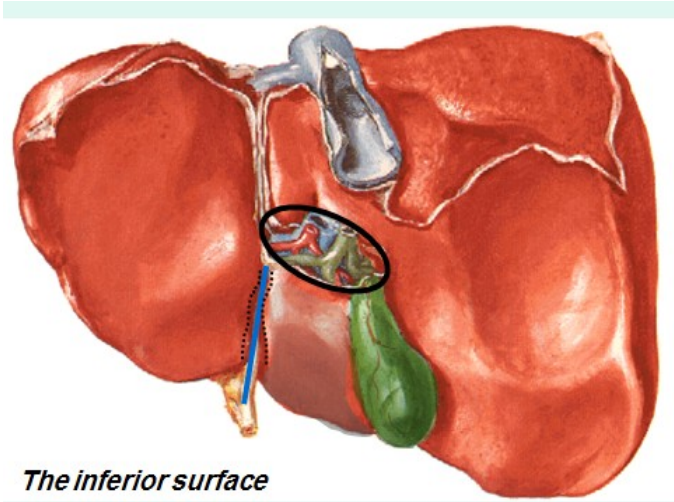
The inferior surface



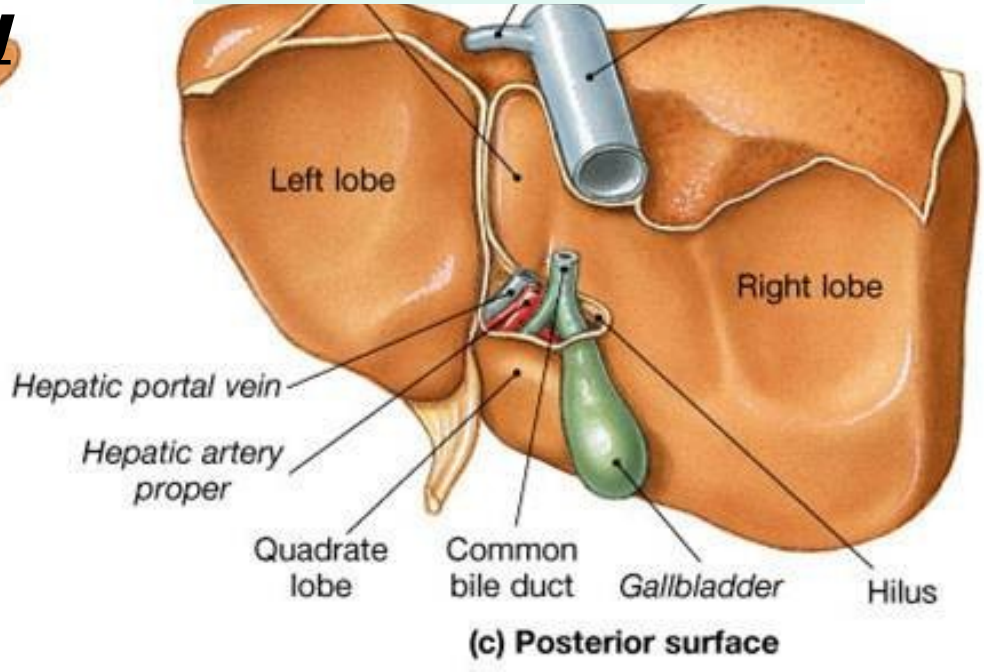
# ***porta hepatis***

- It is a deep transverse fissure situated between the quadrate lobe in front, and the caudate process behind.
- ***Structures passing through the porta hepatis***

1. **The hepatic ducts**
2. **The hepatic artery**



*The inferior surface*




(c) Posterior surface

# Lobes Of The Liver

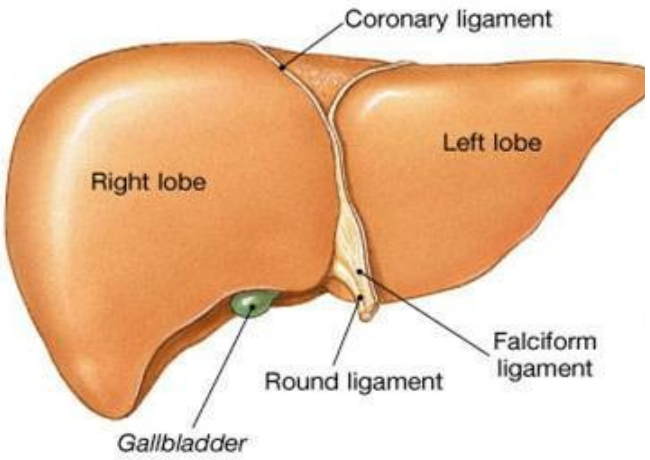
# Lobes of the liver:

**(1) Anatomical Lobes of the Liver**

According to attachments of ligaments:

The liver is divided into

1. right lobe (large)
2. left lobe (small)



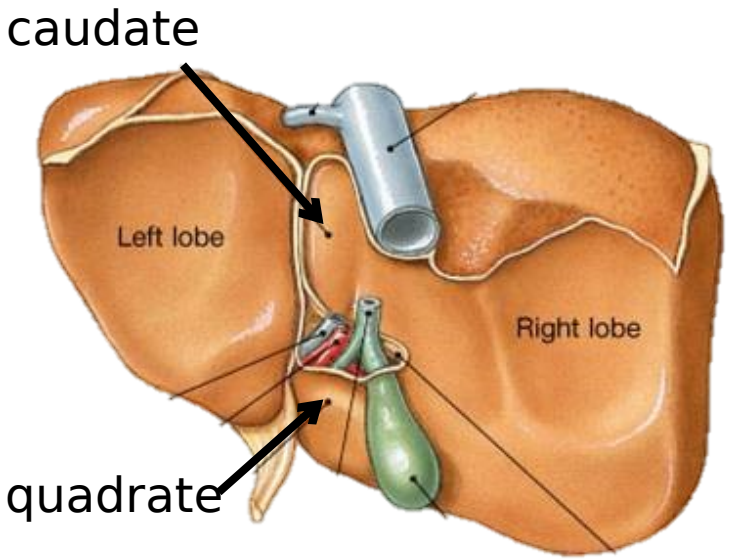

(b) Anterior surface

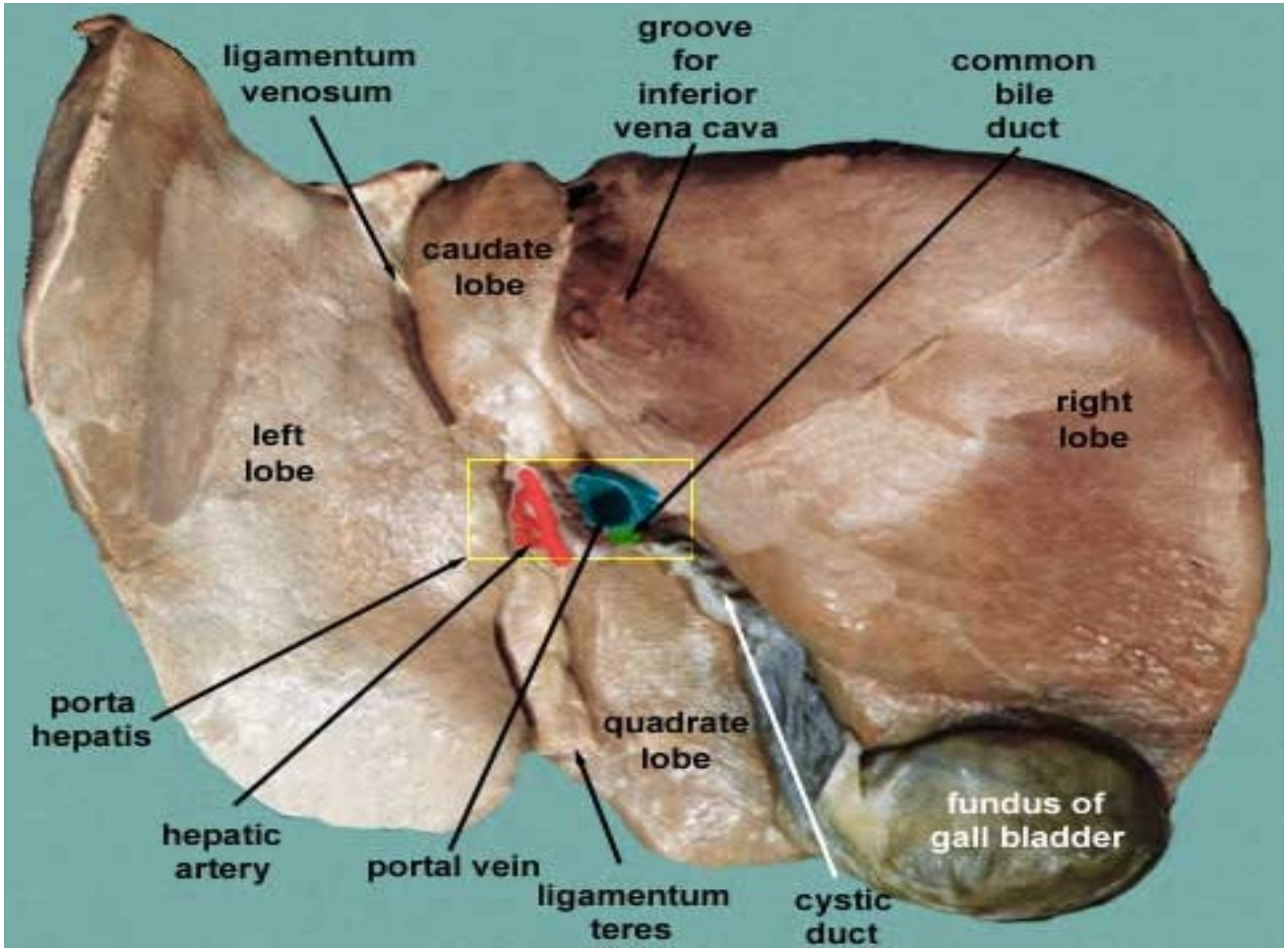
**and two accessory lobes**

A.caudate lobe

B. quadrate lobes

*(they are parts of the*




ligamentum venosum
groove for inferior vena cava
common bile duct
caudate lobe
left lobe
right lobe
porta hepatis
quadrate lobe
fundus of gall bladder
hepatic artery
portal vein
ligamentum teres
cystic duct

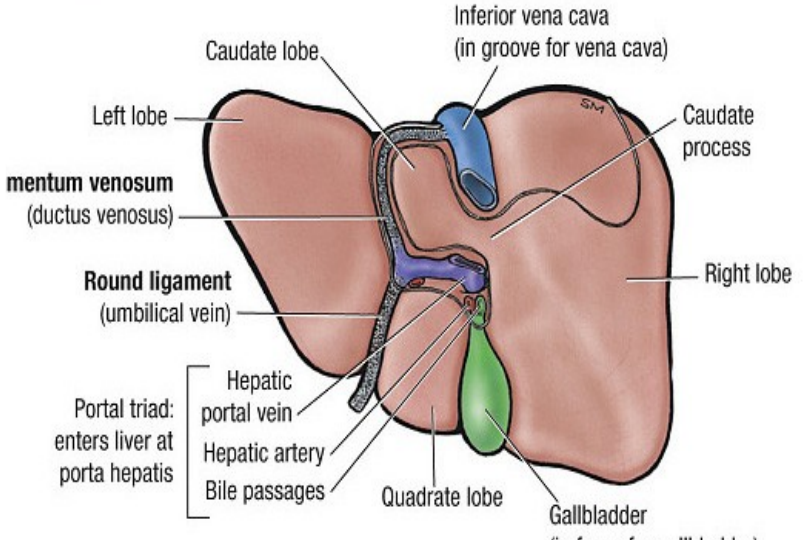
# Lobes of the liver:

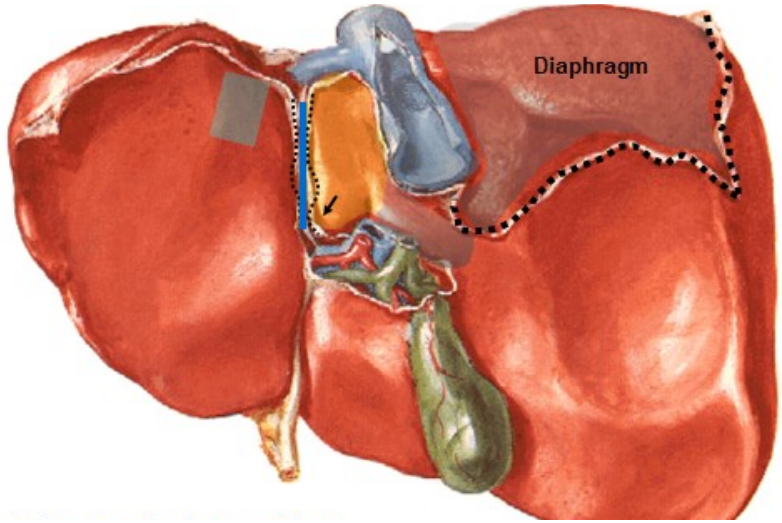
## The Caudate lobe-

- is bounded
  - on the left by the fissure for the ligamentum venosum
  - on the right by the groove for the inferior vena cava.

**Functionally, it is separate from the right and the left lobes of the liver.**

- It presents 2 processes
  1. **papillary process** from its lower and left part
  2. **caudate process** from its lower and right



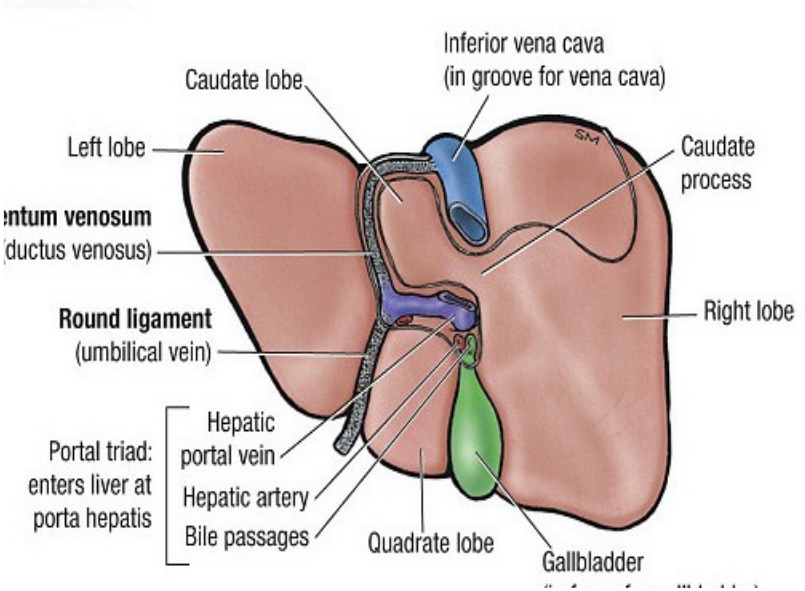



# Lobes of the liver:

## The quadrate lobe

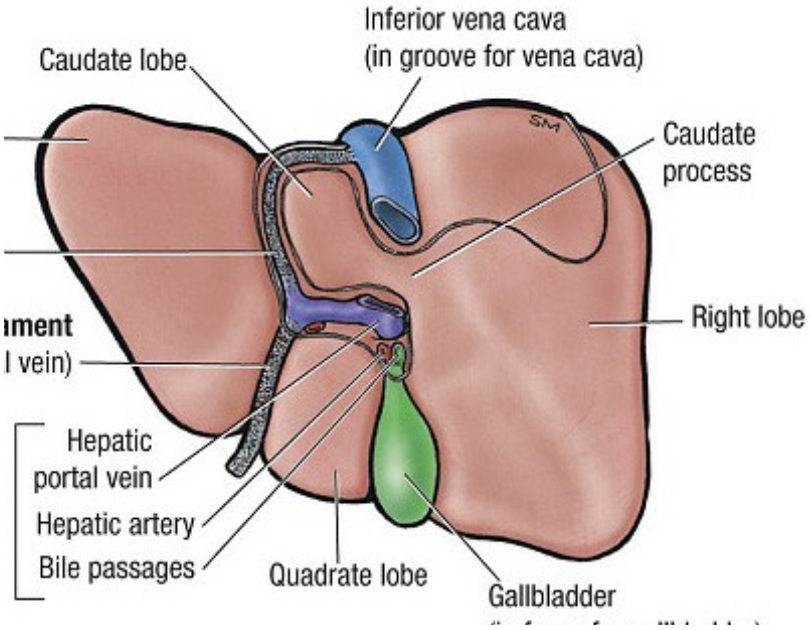
- is bounded
  - on the left by the fissure for ligamentum teres
  - on the right by the fossa for the gallbladder.

- **Functionally it is related to the left lobe of the liver.**



# Functional Subdivision of the Liver:

***According to a plane passing through the groove for inferior vena cava & fossa for gall bladder,*** the liver is divided into right and left functional lobes.



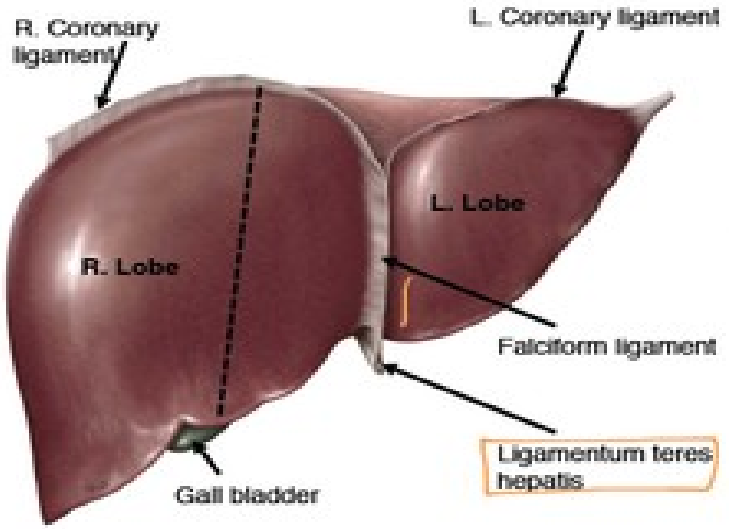
# eritoneal covering and folds

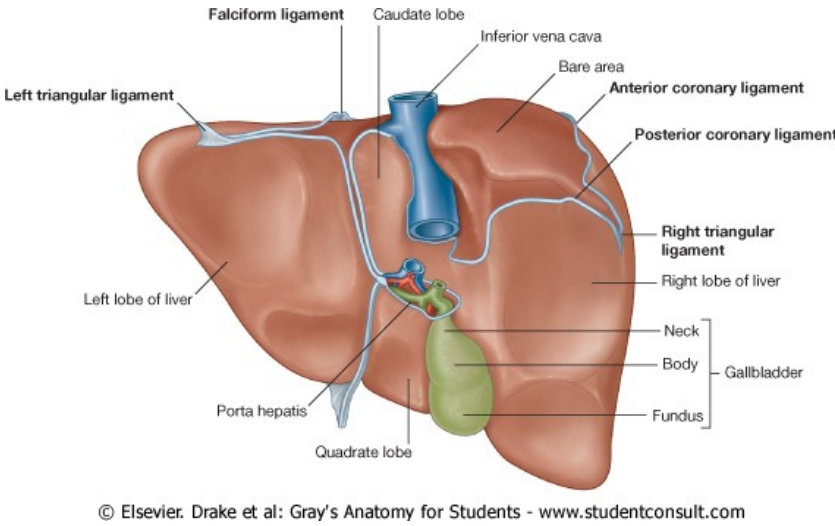
the liver is **almost completely** covered by **visceral peritoneum** **except** for a small area of the liver against the diaphragm **(the bare area)**,

**the reflection of peritoneum & folds**

-the upper coronary ligament

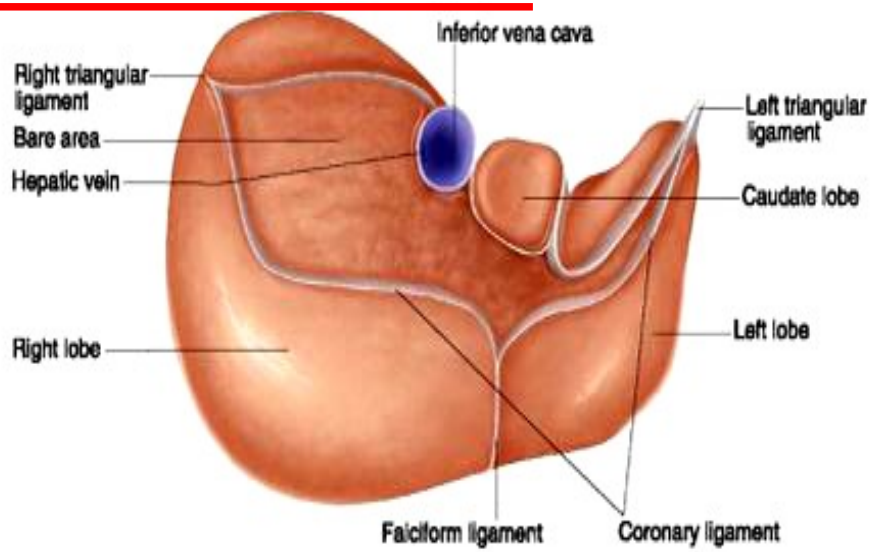
-the lower coronary ligament

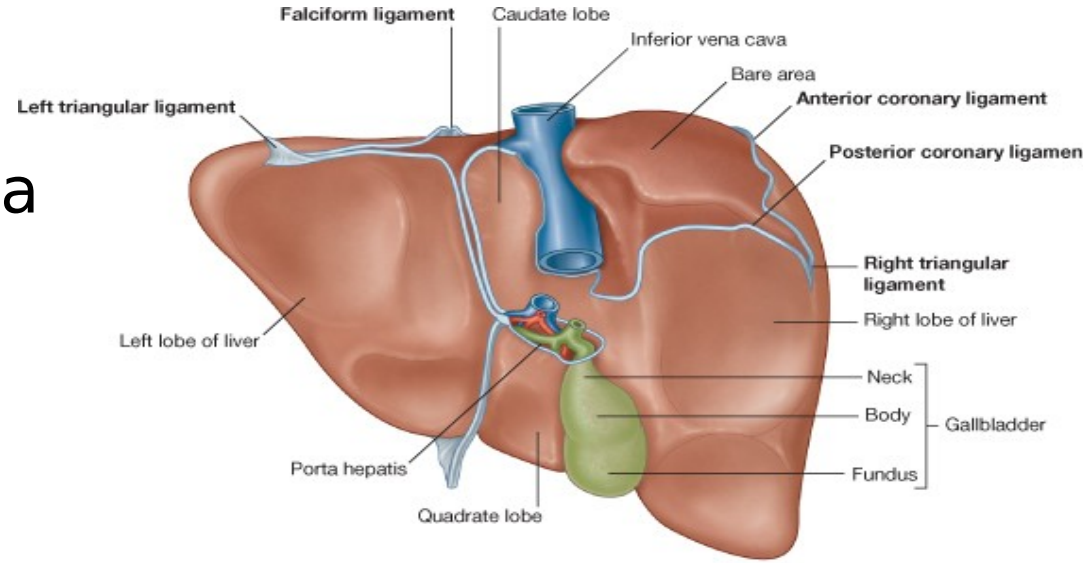


# re areas of the liver:

- ✓ Between layers of falciform ligament
- ✓ Bare area between the 2 layers of coronary ligament.
- ✓ Fissure for
  1. ligamentum teres.
  2. ligamentum venosum.
- ✓ Groove for inferior vena cava.
- ✓ Fossa for gall bladder.
- ✓ Porta hepatis

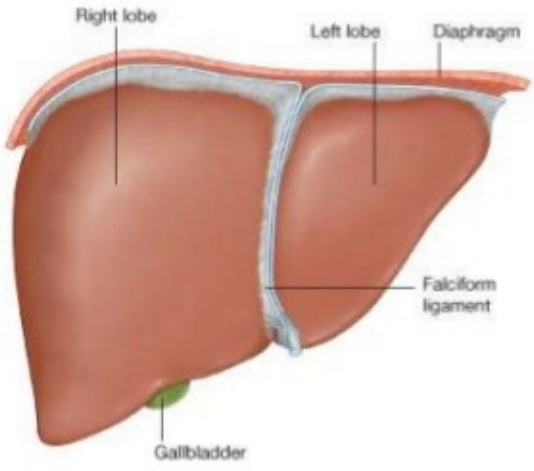


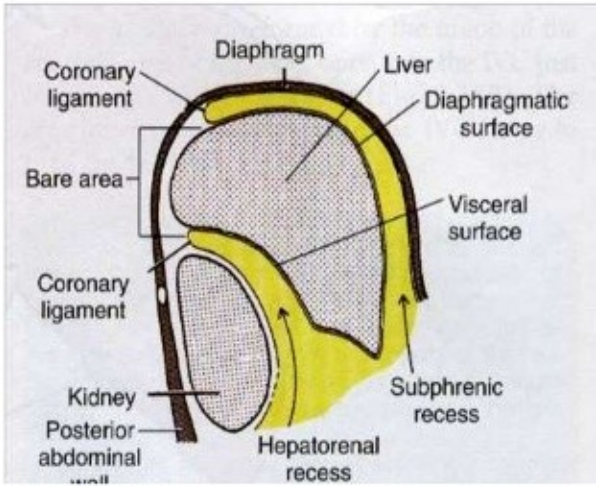



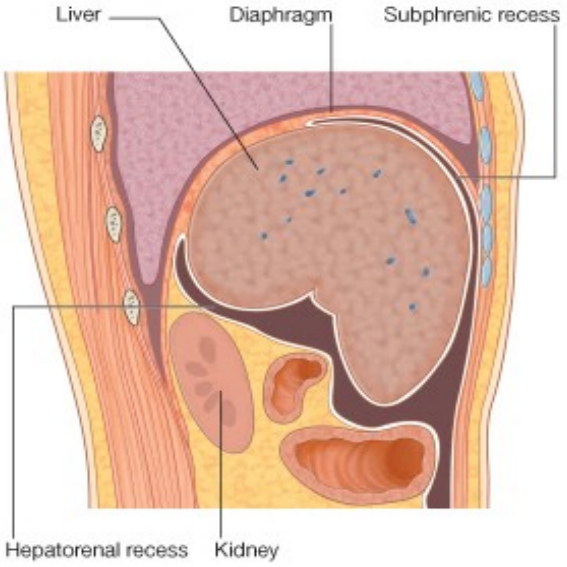
# Hepatic Recesses

## I. the subphrenic recess

- separates the diaphragmatic surface of the liver from the diaphragm
- is divided into right and left areas by the falciform ligament,



# II. the hepatorenal recess =

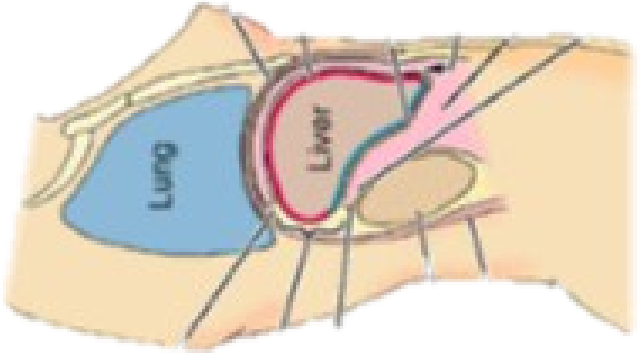
## Morison pouch

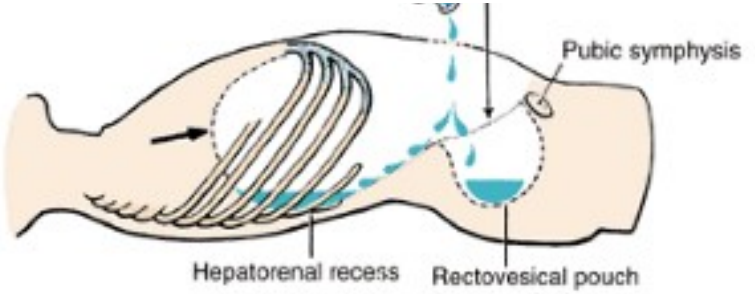
- between visceral surface of the liver and the right kidney

Subphrenic Abscesses

Peritonitis may result in the formation of localized abscesses in the peritoneal cavity. A common site for pus to collect is in a subphrenic recess

The hepatorenal recess is a gravity-dependent part of the peritoneal cavity in the supine position; pus from a subphrenic abscess may drain into one of the hepatorenal recesses, especially when patients are bedridden



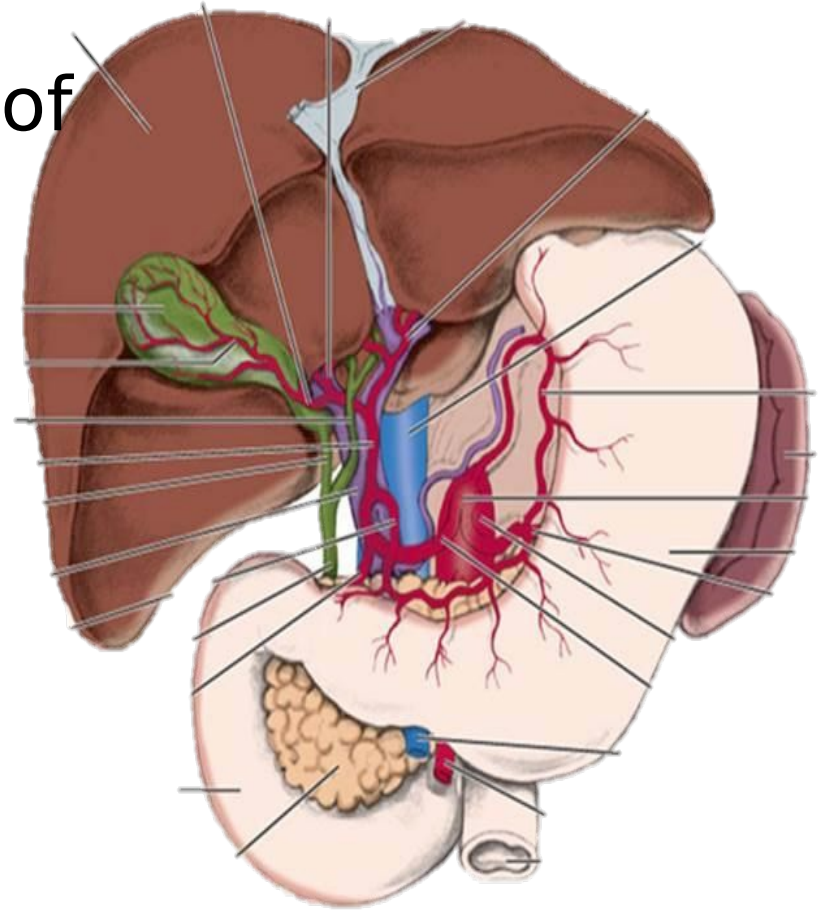



# Blood supply of the liver

- about 20% of blood supply from

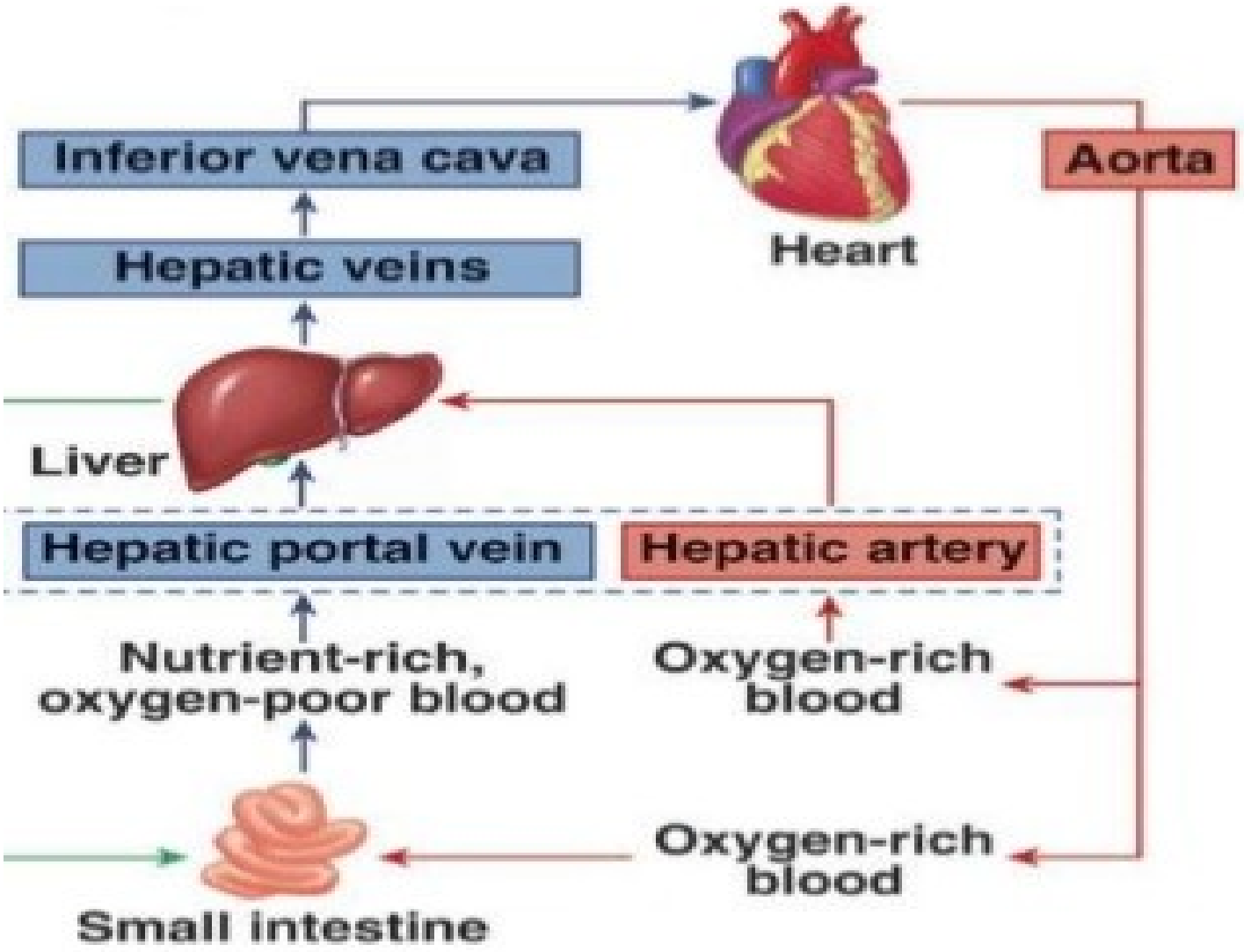
the right and left branches of **hepatic artery**

- about 80%. **Portal Vein**



These branches enter through the porta hepatis and are

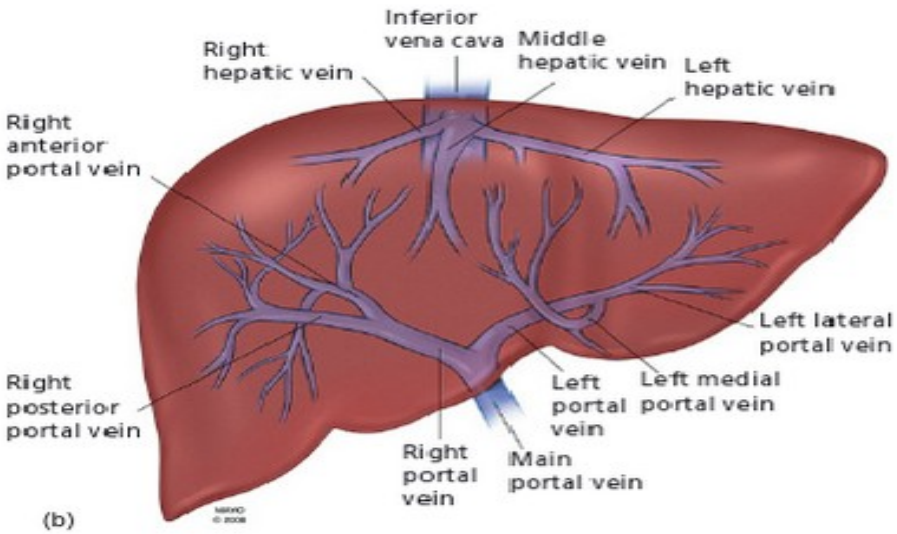
# Blood supply of the liver



# Vein drainage of the liver

- **The portal vein**

divides into right and left terminal branches that enter the porta hepatis.




- **The hepatic veins**

Rt, Lt & middle hepatic veins emerge from the posterior surface of the liver and drain into the

# cular segments of the liver:

- The liver has **8 vascular** segments.
- Each segment is supplied by a branch of the hepatic artery, a branch of the portal vein and drained by a radicle to the hepatic duct.
- These segments are of surgical importance in partial hepatectomy.

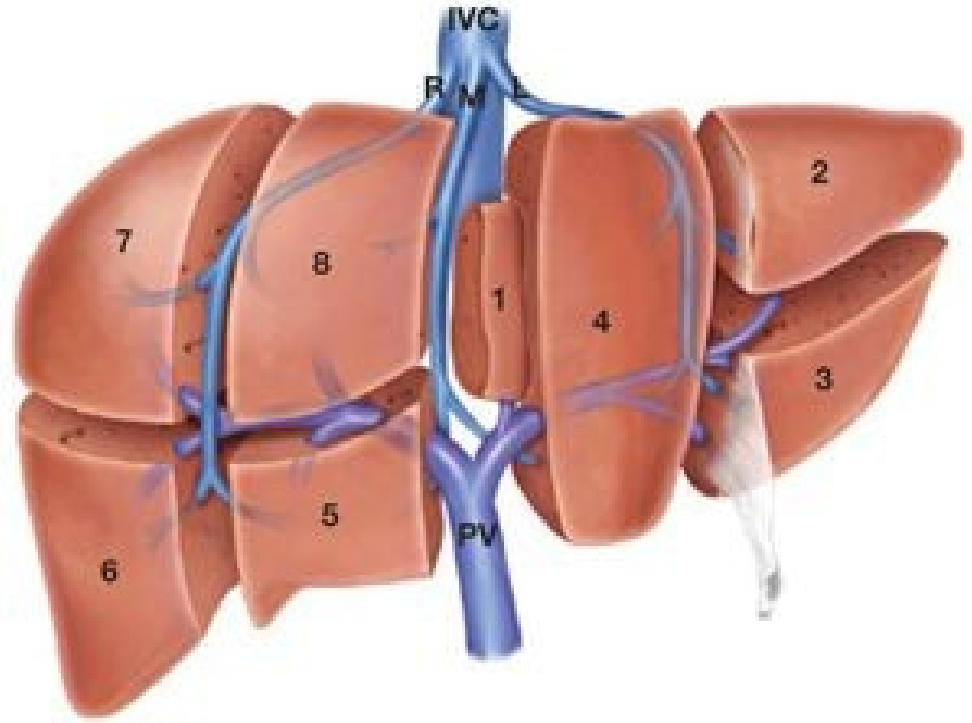



FIG 1 • Couinaud segments with vascular anatomy.

# GOOD LUCK